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OCT 19 2006

REMARKS

Claims 1-52, all the claims pending in the application, stand rejected on prior art grounds. Claims 1, 5, 18, 22, 35, 39, and 52 are objected to. Claims 1, 3, 5, 18, 20, 22, 35, 37, 39, and 52 are amended herein. Applicants respectfully traverse these objections/rejections based on the following discussion.

I. The Objections to the Claims

Claims 1, 5, 18, 22, 35, 39, and 52 are objected to because the Office Action indicates that it is unclear what "production/consumption" means. Accordingly, the Applicants have amended claims 1, 3, 5, 18, 20, 22, 35, 37, 39, and 52 to recite "production and consumption". Paragraph [0025] on page 8 of the specification, as originally filed, clearly indicates what is meant by production and consumption within the contexts of the application. More particularly, paragraph [0025] on page 8 of the specification states, in part, "[t]o keep the data format general, the data source 125 and target 135 are modeled, not as relational databases or file systems, but instead as change (delta or δ) producers and change (delta or δ) consumers. The source 125 produces deltas (δ) that correspond to changes at the source 125, and the target 135 consumes these deltas (δ) to reflect these changes." Accordingly, the claims should be construed in light of the description in the specification. In fact, MPEP §2106 cautions reading claims in a vacuum.

Page 14 of the Office Action indicates that the finality of the Office Action is proper even though there is an introduction of new grounds for objection (not necessitated by the Applicants' previous amendment), and refers to MPEP §706.07(a). However, there is nothing in MPEP §706.07(a) which discusses objections, and any reading of this into the MPEP is improper.

10/645,221

14

Indeed, such an objection could have been made in the previous Office Action, but was not for reasons not apparent to the Applicants or articulated in the present Office Action, and as such the Applicants are clearly being prejudiced by not having the opportunity to clarify their claimed subject matter in an effort to overcome a newly entered objection. If such an objection is held to be final, then this would unfairly permit the USPTO to withhold their objections to the claims until a second or final Office Action thereby forcing an Applicant to respond for the first time to such objections in response to the final Office Action, when the Applicant did nothing to necessitate the delay in introduction of such an objection.

Given the nature of patent prosecution practice before the USPTO, and the Examiner's ability to refuse entry of any amendments after final, this current objection would further prejudice the Applicants to pay additional fees (i.e., Request for Continued Examination fees, etc.) in order to have the required amendments entered for purposes of appeal. Accordingly, the Applicants respectfully suggest that the finality of the present Office Action is prematurely improper and as such request that either (i) the finality of the present Office Action be withdrawn; or (ii) this amendment should be entered for purposes of appeal should the objections/rejections be sustained.

II. The Prior Art Rejections

Claim 52 stands rejected under 35 U.S.C. §102(e) as being anticipated by Souder, et al. (U.S. Patent No. 6,889,231), hereinafter referred to as Souder. Claims 1-13, 15-30, 32-47, and 49-51 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Souder, in view of Good, et al. (U.S. Publication No. 2003/0088589), hereinafter referred to as Good. Claims 14,

10/645,221

15

31, and 48 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Souder, in view of Good, and in further view of Nguyen, et al. (U.S. Patent No. 6,006,267), hereinafter referred to as Nguyen. Applicants respectfully traverse these rejections based on the following discussion.

The claimed invention, as provided in amended independent claims 1, 18, 35, and 52 contain features, which are patentably distinguishable from the prior art references of record. Specifically, claims 1, 18, and 52 recite, in part, "...embedding replication tracking information within said delta production and consumption value, wherein said replication tracking information comprises a timestamp and a contiguous sequence number;..." and "...atomically and independently applying updates exactly once at a target site using said replication tracking information." Similarly, claim 35 recites, in part, "...a source site comprising data to be replicated, wherein updates to said data to be replicated are represented by a delta production and consumption value, wherein said delta production and consumption value is embedded with replication tracking information, said replication tracking information comprising a timestamp and a contiguous sequence number;..." and "...a target site connected by a communication channel to said source site, wherein said target site is operable to receive updates exactly once using said replication tracking information, wherein said target site comprises an apply service operable to embed and analyze said tracking information during a crash recovery sequence, and wherein said apply service utilizes an in-memory index when a system crash occurs and a recovery process is initiated by said data replication system." Claim 52 further provides, "means for embedding replication tracking information within said delta production and consumption value, wherein said replication tracking information comprises origination tags, a timestamp, and a contiguous sequence number." These features are neither taught nor suggested in the prior art

10/645,221

16

of record.

It appears that the Office Action is misconstruing the term “atomically”. Within the context of the Applicants’ invention “atomically” refers to an “all or nothing” approach. Again, MPEP §2106 cautions reading claims in a vacuum. In fact, one of ordinary skill in the art would understand what the correct definition of “atomically” is. For example, it is common understanding in the field of data replication that “atomically” refers to this “all or nothing” approach. For example, see Wing et al., “Extensions to Standard ML to Support Transactions, 1992 ACM Workshop on ML and its Applications, wherein the Abstract states, in part, “[a] transaction is a control abstraction that lets programmers treat a sequence of operations as an atomic (“all-or-nothing”) unit.” (<http://citeseer.ist.psu.edu/215152.html>). Additionally, the Center for Computation and Technology (CCT) at the Louisiana State University (<http://www.cct.lsu.edu/~maclaren/HARC/>) states, “a phased commit protocol is used to ensure that all the user’s allocation requests are dealt with in atomically (all or nothing).” Also, see Maron, J., “Transaction Processing in Distributed Service-Oriented Applications,” <http://www.informit.com/articles/article.asp?p=351607&rl=1>, which states, “The fundamental goal of transaction processing platforms is to guarantee that work performed across multiple distributed components within a system can execute atomically (“all or nothing” semantics), in isolation from other elements in the system, and can be recorded permanently on some form of durable media.”

However, Souder uses “atomic” in a different connotation. The Applicants’ use of “atomically” is that each update is applied exactly once; i.e., the two actions of (a) pulling an update out of the stream and (b) applying it at the target are performed “atomically”; either they

10/645,221

17

are both performed or neither are performed. In order to accomplish this, the Applicants embed replication tracking information within the update itself. This tracking information tracks what are all the change records that have been applied thus far at the target. Conversely, Souder does not embed such replication tracking information within the update. Rather, Souder sends this information as part of the same stream, but not as part of the update. Additionally, the tags that Souder place in the LCR are details about the particular change, not information that tracks which change records have thus far been applied. In the Applicants' invention, the replication tracking information is used to determine if a given delta (δ) has been previously applied to the target site (see page 4, paragraph [0008] of the Applicants' specification as originally filed). Conversely, Souder does not utilize tracking information in this manner. The Office Action (page 18) states that column 32, line 36 through column 33, line 26 of Souder teaches this feature. However, a closer reading of the cited language reveals no such teaching, but rather cryptically refers to "flashback queries", which are non-analogous to the replication tracking information used by the Applicants.

Insofar as references may be combined to teach a particular invention, and the proposed combination of Souder and Good and Nguyen, case law establishes that, before any prior-art references may be validly combined for use in a prior-art 35 U.S.C. § 103(a) rejection, the individual references themselves or corresponding prior art must suggest that they be combined. However, there is nothing in each of the references that suggests such a motivation to combine as suggested in the Office Action. In fact, had such a motivation been anticipated in any of the prior art references, then surely some discussion regarding alternative embodiments or manners of combination would have been suggested or at least inferred in any of the prior art references.

10/645,221

18

In fact, no suggestion for combination is provided in any of the prior art references.

More particularly, the Office Action supposes that one of ordinary skill in the art would be likely to combine Souder, Good, and Nguyen together to teach the Applicants' claimed invention. However, there is no evidence in Souder or Good of how a UDP would be implemented or used rather than a TCP. However, in TCP channels, certain connections must be established before data is transmitted. Conversely, in UDP channels, data packets may be immediately transmitted without the establishment of these connections. Accordingly, these are two separate and wholly different platforms that are not easily combinable to one of ordinary skill in the art. Additionally, further evidence of the unobvious and unlikely combination of Souder with Good and Nguyen is established from the U.S. Patent & Trademark Office itself.

As evidence for the above, the Applicants note that even the USPTO has designated Souder, Good and Nguyen as non-analogous art. First, Souder has been classified in U.S. classes 707/104.1; 707/10; 707/103 R; 707/204; 707/205; 709/203; 709/206; 709/223; 709/226; 709/229; and 713/162. Conversely, Good has been classified in U.S. class 707/203. Still conversely, Nguyen has been classified in U.S. classes 709/227 and 709/230. Thus, there are no overlapping classes for Souder, Good and Nguyen. Therefore, if the USPTO with its vast repository of prior art references available for analysis has determined that Souder, Good and Nguyen are not classified in the same art field, and therefore unlikely to be combined with one another, then one of ordinary skill in the art would hardly be likely to combine Souder with Good and Nguyen in the manner suggested in the Office Action. Indeed, such a combination is unobvious.

In In re Sernaker, 217 U.S.P.Q. 1, 6 (C.A.F.C. 1983), the court stated: "[P]rior art references in combination do not make an invention obvious unless something in the prior art

references would suggest the advantage to be derived from combining their teachings.” Furthermore, the court in Uniroyal, Inc. v. Rudkin-Wiley Corp., 5 U.S.P.Q.2d 1434 (C.A.F.C. 1988), stated, “[w]here prior-art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself. . . . Something in the prior art must suggest the desirability and thus the obviousness of making the combination.” There is nothing in the prior art that refers to a suggestion or desirability of making the proposed combination. Accordingly, the rejection under 35 U.S.C. §103(a) is prima facie defective.

In the present application, the reason given to support the proposed combination is improper, and is not sufficient to selectively and gratuitously substitute parts of one reference for a part of another reference in order to try to meet, but failing nonetheless, the Applicants’ novel claimed invention. Moreover, there is nothing in the prior art references themselves, namely Souder, Good, and Nguyen, which suggests a motivation to combine elements from each reference in a manner consistent with the suggestion by the Office Action. Furthermore, the claimed invention meets the above-cited tests for obviousness by including embodiments such as “embedding replication tracking information within said delta production and consumption value, wherein said replication tracking information comprises a timestamp and a contiguous sequence number” and “atomically and independently applying updates exactly once at a target site using said replication tracking information.” As such, all of the claims of this application are, therefore, clearly in condition for allowance, and it is respectfully requested that the Examiner pass these claims to allowance and issue.

As declared by the Federal Circuit:

10/645,221

20

In proceedings before the U.S. Patent and Trademark Office, the Examiner bears the burden of establishing a prima facie case of obviousness based upon the prior art. The Examiner can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. In re Fritch, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992) citing In re Fine, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988).

Here, the Examiner has not met the burden of establishing a prima facie case of obviousness. It is clear that, not only does Souder fail to disclose all of the elements of the claims of the Applicants' claimed invention, particularly embedding tracking information in the delta production and consumption value itself but also, if combined with Good and Nguyen, fails to disclose these elements as well. The unique elements of the claimed invention are clearly an advance over the prior art.

The Federal Circuit also went on to state:

The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. . . . Here the Examiner relied upon hindsight to arrive at the determination of obviousness. It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. Fritch at 1784-85, citing In re Gordon, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984).

Here, there is no suggestion that Souder, alone, or in combination with Good and Nguyen teaches a structure and method containing all of the limitations of the claimed invention.

Consequently, there is absent the "suggestion" or "objective teaching" that would have to be made before there could be established the legally requisite "prima facie case of obviousness."

In view of the foregoing, the Applicants respectfully submit that the collective cited prior art do

not teach or suggest the features defined by amended independent claims 1, 18, 35, and 52 and as such, claims 1, 18, 35, and 52 are patentable over Souder, alone, or in combination with Good and Nguyen. Further, dependent claims 2-17, 19-34, and 36-51 are similarly patentable over Souder, alone, or in combination with Good and Nguyen, not only by virtue of their dependency from patentable independent claims, respectively, but also by virtue of the additional features of the invention they define. Thus, the Applicants respectfully request that these rejections be reconsidered and withdrawn.

Moreover, the Applicants note that all claims are properly supported in the specification and accompanying drawings. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections.

III. Formal Matters and Conclusion

With respect to the objections/rejections to the claims, the claims have been amended, above, to overcome these objections/rejections. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the objections/rejections to the claims.

In view of the foregoing, Applicants submit that claims 1-52, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary. Please charge any deficiencies and credit any

10/645,221

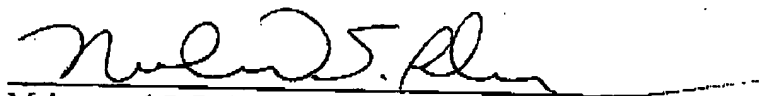
22

overpayments to Attorney's Deposit Account Number 09-0441.

Respectfully submitted,

Dated: October 19, 2006

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10/645,221

23